Difficult abdominal access in laparoscopic cholecystectomy in elderly patients: our experience and literature review.

Difficult abdominal access in laparoscopic cholecystectomy in elderly patients: Our experience and literature review

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Abstract

Laparoscopic cholecystectomy (LC) is currently the gold standard treatment for symptomatic cholelithiasis. LC is actually condidered a medium complexity surgical operation. LC could be technically hard, especially if patient underwent previous surgical operation. These difficulties increase in outcome of previous operation in right upper quadrant (RUQ): in this case laparoscopic access is defined as an “hard access”. We present two cases in which an unconventional access was performed: laparoscopic cholecistectomy is a safe and feasible procedure, although a careful assessment preoperative is indispensable. In particular, caution is required in both the triangulation of the trocar, which in pneumoperitoneum induction.

List of abbreviations

LC, laparoscopic cholecystectomy; RUQ, right upper quadrant; MS, multiple sclerosis; PEG, percutaneous endoscopy gastroscopy; US, ultrasonography; CT, computed tomography; TME, total mesorectal excision; ERCP, endoscopic retrograde colangiopancreatography

1. Background

Laparoscopic cholecystectomy (LC) is currently the gold standard treatment for symptomatic cholelithiasis. LC is actually considered a medium complexity surgical operation. The techniques of LC are the most commonly used are “American” technique (standardized by Reddick and Olsen) and “French” technique (standardized by Dubois and Perissat). Single port cholecystectomy is a new surgical procedure that uses a single umbilical trocar [1] and [2].

Between January 2010 and December 2013, 811 LC were performed in our department. LC could be technically hard, especially if patient underwent previous surgical operation. These difficulties increase in outcome of previous operation in right upper quadrant (RUQ): in this case laparoscopic access is defined as a “hard access”.

We present two cases in which an unconventional access was performed. The first case is a male patient, which has PEG in advanced multiple sclerosis, the second one in a male patient, previously undergone anterior resection of the rectum (RAR), which has an ileostomy in right hypochondrium.

2. Case report 1

The first case is about a 63 years old male patient with advanced Multiple Sclerosis (MS) and epigastric PEG (Percutaneous Endoscopy Gastroscopy) since 2008 because of total dysphagia.

The patient was hospitalized in November 2012 for acute cholecystitis, regressed with medical treatment.

In October 2013 the patient was rehospitalized for biliary colic and cholecystitis. The abdominal ultrasonography (US) revealed a distended gallbladder with thickened walls and endoluminal biliary magma and bile-stones.

Cholecystectomy was indicated.

To complete the diagnostic process, an abdominal Computed Tomography (CT) was performed to exclude urological pathology and to evaluate relations between PEG, abdominal wall and gallbladder. The CT showed the PEG placed at the level of the antral gastric portion, in a left paramedian gastric position.

Therefore, we decided to approach the patient with laparoscopy, changing the operating triangle.

Because of the known MS, the patient positioning in the operating room was difficult due to the fixed position of the left forearm, which occupied part of the operative field, just below the PEG's site.

The operating triangle was then moved to the right abdominal quadrants.

Because of the difficult access in the umbilical region with Hasson trocar, pneumoperitoneum was established with Veress needle at the McBurney point and the access in abdominal cavity was made with a 5 mm optical trocar at the same point.

We performed adhesiolysis and then we placed a 5–12 mm trocar in the navel.

The PEG appeared correctly positioned, and the stomach adherent to the abdominal wall.

Pneumoperitoneum was maintained at 8–10 mmHg and other two 5 mm trocars were positioned in the epigastrium and right side.

We performed retrograde cholecystectomy with conventional technique. At the end of the surgical procedure, we controlled PEG's tightness with the introduction of 120 cc of diluted methylene blue, without detecting spillage. Operative time was 120 min. The postoperative course was regular and without complications.

3. Case report 2

We report the case of a 71-year-old male patient initially treated for a pT2pN0 rectal cancer. Index treatment comprised a laparoscopic rectal resection and TME. Postoperative course was complicated by anastomotic leakage. The patient was subjected to a reintervention with multiple washings of the peritoneal cavity and the construction of a loop ileostomy positioned in the right upper quadrant of the abdomen. After 12 days of Vacuum dressing technique to temporary cover of laparostomy, the abdominal wall was sutured.

Two months later the patient presented to our emergency department with an episode of acute cholecystitis, rapidly evolving towards a gangrenous state of the organ and SIRS.

Despite the high probability of observing the presence of surgical adhesions and the presence of the ileostomy in the right upper quadrant of the abdomen, we decided to perform the cholecystectomy by the laparoscopic approach.

We performed a laparoscopic cholecystectomy to the patient placed in the French position. The pneumoperitoneum was achieved by the use of a Verres needle positioned in the left hypochondrium, without signs of “overpressure”. Then we placed a 5/12 mm optical trocar in the left flank.

The exploration of the abdomen showed an intraperitoneal situation of massive postsurgical adhesions. It was necessary to perform a wide adhesiolysis after the introduction of a 5 mm trocar in the left hypochondrium on the middle axillary line, in a surface abdominal area corresponding to a little intraperitoneal adhesions free chamber.

After a careful adhesiolysis, the ileostomy was completely isolated. This has made it possible to insert the other two operating trocars: one 5 mm trocars in the right flank and another 10 mm supra-umbilical trocar according to the Dubois scheme.

Exploring the liver area we observed that the gallbladder it appeared gangrenous and fully adherent at the omentum, at the right colon and at the abdominal wall. We did not observe liver abscesses or perforation signs of the organs.

We performed an anterograde cholecystectomy. We have identified and sectioned the cystic duct.

Than we made an accurate adhesiolysis of the entire abdominal cavity to avoid the development of intraabdominal abscesses. We placed three Jackson Pratt drain devices. We observed no complications after the surgical operation. The intervention lasted 175 min.

The postoperative hospital stay was complicated by the detection of a biliary leakage, in the third day after surgery, due to progressive necrosis of the cystic stump. Therefore was made an ERCP with the placement of a biliary endoprosthesis, with resolution of the complication.

4. Discussion

Incidence of cholelitiasis in Italian population is about 18%. In Italy 100,000 cholecystectomy per year are performed [1]. Laparoscopy is current gold standard for cholecystectomy.

LC may be more difficult in some clinical conditions, such as the presence of a PEG or a stoma in right hypochondrium: these condition may make surgical target visualization harder. In addition, PEG or stoma could be damaged from pneumoperitoneum. For these reasons, adherence or previous surgical operation in upper abdominal quadrant have been considered contraindication to perform laparoscopy.

Mini-invasivity and uncontested advantages of laparoscopic technique compared with open technique encouraged us to not exclude the minimally invasive approach, although only 1 work on laparoscopy and difficult access was found in literature. Our choice was guided by the experience gained in the laparoscopic treatment of incisional hernias, which often makes it necessary to approach to adherence syndromes and “difficult” abdominal walls [4], [5] and [6].

Therefore, we have decided to approach with laparoscopy the cases described above, while proceeding with caution, both in the placement of the operative triangle, both in the induction of pneumoperitoneum, In patient with PEG pneumoperitoneum was kept at 10 mmhg, in patient with stoma was raised slowly at 12 mmhg. At surgery, PEG was well fixed (maked 4 years ago); however, we decided to check the tightness of the PEG with methylene blue, after surgical procedure. The inspection of the stoma at the end of intervention, however, was sufficient to assess the proper reimbursement, to the abdominal wall.

5. Conclusion

Laparoscopic cholecistectomy is a safe and feasible procedure. In patients with PEG or ileostomy in right quadrants laparoscopic approach should not be excluded, although a careful assessment preoperative is indispensable.

Surgery could be more difficult in elderly patients [7] but we consider laparoscopy as feasible in emergency[8] and it is a secure technique in young patients and in the elderly [3], [9], [10], [11], [12], [13] and [14]; in these cases an adequate and expert perioperative team is fundamental.

In particular, caution is required in both the triangulation of the trocar, which in pneumoperitoneum induction.

Ethical approval
None required.

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Author contribution

Alessandra Surace: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data; also participated substantially in the drafting and editing of the manuscript.

Silvia Marola: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data.

Rossella Benvenga: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data.

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Stefano Enrico: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data.

Valter Martino: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data.

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Mario Solej: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data; also participated substantially in the drafting and editing of the manuscript.

Conflicts of interest
All Authors have no conflict of interest.

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